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REMARKS

Claims 1-20 are currently pending. Claims 1-4, 14, and 17-20 are rejected under 35 U.S.C. 102 (b) as anticipated by or in the alternative under U.S.C. § 103(a) as obvious over Daniel et al (WO 02/100912 A1).

Claims 5-8 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al (WO 02/100912 A1).

Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Langerstedt-Eidrup et al. (US PG Pub. 2003/0208173 A1).

The Rejection of Claims 1, 14, and 17-20 Under U.S.C § 102(b) /103 (a)

The rejection of Claims 1-4, 14, and 17-20 under U.S.C § 102(b) as being anticipated by Daniel is respectfully traversed.

The Daniel reference has a different structure and composition and does not disclose all elements of the instant invention.

With regard to Claim 1, Daniel discloses a composition comprising a polymeric backbone and radiation-activatable groups which are capable of forming covalent crosslinking bonds when impacted by radiation energy and being fixed on a fibrous material after radiation, (page 3, line 44 - page 4, line 9). The fibers are preferably cellulose fibers. The polymeric backbone in the radiation activatable polymeric resins are obtainable from one kind or a combination of two or more monomer molecules such as ethylene, propylene, vinyl chloride, vinyl amine etc., page 4, lines 11-46 and page 5, lines 1 and 2. In the reference, there are two types of crosslinking, one by the radiation activatable polymeric resin, page 6, lines, 24-27, and one by the thermally reactive agent and a thermally active agent, page 6, line 43- page 7, line 8. Crosslinking with the radiation activatable polymeric resin can take place 1) prior to intrafiber crosslinking by a thermally reactive agent 2) simultaneously with intrafiber crosslinking with a thermally reactive agent 3) after intrafiber crosslinking with a thermally reactive agent (page 6, line 43 - page 7, line 1).

Contrary to the Examiner's statement, Daniel does not disclose a crosslinking agent and a C₄-C₁₂ alcohol or polyol. Rather, Daniel discloses crosslinking agents that are C₂-C₉ polycarboxylic acids in EP 429,112 and EP 427, 317 and in EP 252,649 the crosslinking agents are C₂-C₈ dialdehydes. Further, in DE-A 19654739 the crosslinking agents are Fixaprets which are modified Dimethyloldihydroxyethylene urea (DMDHEU) which have been modified with a monohydric C₁₋₅ alcohol *and* a polyol selected from the group consisting of ethylene glycol, diethylene glycol, 1,2-butylene glycol, 1,3 butylene glycol, 1,4-butylene glycol, glycerol, and polyethylene glycols of the formula HO(CH₂CH₂)_n where 3= \leq n \leq 20 (sic) (column 1, line 39 – line 48, U.S. 6,265,589, cognate of DE - A 19654737) and page 2, line 22 – line 38, DE-A 19654739. Thus the Daniel et al. reference teaches only crosslinking cellulose fibers with two crosslinking agents, in one case with a radiation activatable polymeric resin alone and in the other, with the radiation activatable resin and a thermally reactive agent.

Daniel discloses the following:

"Fixaprets are modified Dimethyloldihydroxyethylene urea as described in DE-A 19654739 wherein the the given definitions of R¹ and R² are preferred. Within this invention R¹ and R² may be independently of each other any C₁ to C₁₄ alcohol or polyol as described in DE-A- 19654739." emphasis added.

A review of the abstract for the above reference indicates that the R¹ and R² are defined by R¹ = -CH₂-O-X (with X=1-5 alkyl, preferably methyl); R²=a hydroxyalkoxyalkyl group obtained by etherification of a -CH₂OH group with at least one polyol selected from ethylene glycol, diethylene glycol, 1,2- and 1,3 propylene glycol, 1,2-,1,3- and 1,4 butylene glycol, glycerol and polyethylene glycols of formula HO(CH₂CH₂O)_nH (with n=3-20) (sic). A copy of the abstract is included in this response. Thus Daniel does not teach crosslinking in the presence of a C₄-C₁₂ polyol. Rather, Daniel teaches that the polyol and the alcohol are part of the asymmetric substitution on the two nitrogen atoms of the imidazolidine ring in DMDHEU (column 1, line 59 -

column 2, line 2, US 6,265,589, the cognate of DE-A 19654739) and this substituted DMDHEU functions as a thermal crosslinking agent prior to crosslinking,

Applicants are appreciative of the Examiner's recognition that Daniel et al. do not disclose that the crosslinked cellulosic fibers are characterized by a Whiteness Index greater than about 69.0.

Since every element of the claim is not disclosed in the Daniel reference the Examiner has not established a prima facie case of anticipation. Withdrawal of the rejection is respectfully requested.

In the instant invention the absorbent product comprises cellulosic fibers reacted with an effective amount of a crosslinking agent in the presence of an effective amount of a C₄-C₁₂ polyol wherein the individualized intrafiber crosslinked cellulosic fibers are characterized by a Whiteness Index greater than about 69.0.

The Examiner has not established a prima facie case of obviousness. Daniel does not disclose crosslinking cellulose fibers with an effective amount of crosslinking agent in the presence of an effective amount of a C₄-C₁₂ polyol and does not disclose individualized fibers with a Whiteness Index greater than 69. Since the structure or the composition recited in the reference are not substantially identical to that of the claims of the instant invention the claimed properties cannot be presumed to be inherent. Furthermore, since by admission, Examiner cannot determine whether or not the reference inherently possesses properties that anticipate or render obvious the claimed invention, the rejection based on obviousness is improper. Applicants therefore request withdrawal of the rejection and allowance of the claim.

With regard to Claims 2-4, Applicants are appreciative of the fact that the Examiner recognizes that Daniel et al. do not expressly disclose the specific range for the L value, a value, b value and percent ISO brightness of the individualized intrafiber crosslinked cellulose fibers.

Claims 2- 4 are dependent on Claim 1.

As stated before, a prima facie case of either anticipation or obviousness cannot be established since the reference does not disclose all the limitations of the claims 1, including the specific range for the L, a, and b values of the individualized intrafiber crosslinked fibers of Claims 2-4. Also, since the structure and composition recited in the reference are not substantially identical to that of the claims of the instant invention the claimed properties cannot be presumed to be inherent. Furthermore, since by admission, Examiner cannot determine whether or not the reference inherently possesses properties that anticipate or render obvious the claimed invention, the rejection based on obviousness is improper. Applicants therefore request withdrawal of the rejection and allowance of the claim.

With regard to Claim 14, Applicants are appreciative of the fact that the Examiner recognizes that Daniel et al. do not disclose a brightness value of greater than 82. Also, Claim 14 is dependent on Claim 1 and all the limitations of Claim 1 have not been met as previously discussed. Accordingly the Examiner is respectfully requested to withdraw the rejection and allow the claim.

With regard to Claims 17-20, Daniel crosslinks the cellulosic fibers with radiation activatable resin formulations and uses these crosslinked fibers in absorbent articles (page 1, lines 9-11). Daniel also discloses intrafiber crosslinking with the radiation activatable resin and a thermally reactive agent, page 6, line 43 – p. 7, line 1. Crosslinking with the radiation activatable polymeric resin can take place 1) prior to intrafiber crosslinking by a thermally reactive agent 2) simultaneously with intrafiber crosslinking with a thermally reactive agent 3) after intrafiber crosslinking with a thermally reactive agent (page 6, line 43 - page 7, line 1).

In the instant invention, the absorbent product comprises cellulosic fibers that have been reacted with an effective amount of a crosslinking agent and a $C_4 - C_{12}$ polyol and the individualized intrafiber crosslinked cellulosic fibers have a Whiteness Index greater than about 69.0. Since every limitation

of the claim have not been disclosed by Daniel et al., there is no anticipation and withdrawal of the rejection is requested.

Since Claims 17-20 are dependent on Claim 1 and every limitation of Claim 1 is not in the Daniel et al. reference, the claims are not anticipated. Also, Claim 1 is not obvious since the Examiner has not established a prima facie case of obviousness. Daniel does not disclose crosslinking cellulose fibers with an effective amount of crosslinking agent in the presence of an effective amount of a C₄-C₁₂ polyol and does not disclose individualized fibers with a Whiteness Index greater than about 69. Since the structure or the composition recited in the reference are not substantially identical to that of the claims of the instant invention the claimed properties cannot be presumed to be inherent. Furthermore, since by admission, Examiner cannot determine whether or not the reference inherently possesses properties that anticipate or render obvious the claimed invention, the rejection based on obviousness is improper. Applicants therefore request withdrawal of the rejection and allowance of the claims

The Rejection of Claims 5-8 and 9-13 Under U.S.C. § 103a

Claims 5-8 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et. al.

Claims 5-8 are dependent on Claim 1. Since all the limitations of Claim 1 have not been met, the rejection is nonobvious.

With regard to Claims 5-8, as stated earlier, Daniel discloses two types of crosslinking, one by the radiation activatable polymeric resin and the other as a combination of the radiation activatable polymeric resin and a thermally reactive agent. Arguments presented earlier are also applied here. Crosslinking agents described by Daniel are C₂-C₉ polycarboxylic acids in EP 429,112 and EP 427, 317 and in EP 252,649 the crosslinking agents are C₂-C₈ dialdehydes.

Further, in Daniel the crosslinking agents are Fixaprets as described in DE A-19654739 (US 6,265,589 cognate) which are modified Dimethyloldihydroxyethylene urea (DMDHEU) which have been modified with a monohydric C_{1-5} alcohol and a polyol selected from the group consisting of ethylene glycol, diethylene glycol, 1,2-butylene glycol, 1,3 butylene glycol, 1,4-butylene glycol, glycerol, and polyethylene glycols of the formula $HO(CH_2CH_2)_n$ where $3 \leq n \leq 20$ (sic), column 1, lines 39-48 of US 6,265,589. The reference states further states that the DMDHEU preferably has asymmetric substitution on the two nitrogens of the imidazolidine ring. Also, it is preferred for one of the two methylol groups of the DMDHEU be etherified with the methyl radical and the other methylol group to be derivatized by the reaction with a polyol selected from the group consisting of ethylene glycol, diethylene glycol, 1,2-butylene glycol, 1,3 butylene glycol, 1,4-butylene glycol, glycerol, and polyethylene glycols of the formula $HO(CH_2CH_2O)_n$ where $3 \leq n \leq 20$, preferably diethylene glycol (column 1, line 59- column 2, line 2). The U.S. cognate of DE-A 19654739, U. S. 6,265,589 ('589 patent) is submitted with this response. Specifically, the modification of the DMDHEU with a monohydric alcohol and a polyol before crosslinking is described in column 1, lines 39-53 of the '589 patent. Thus the Daniel et al. reference teaches only crosslinking cellulose fibers with two different crosslinking agents, one with a radiation activatable polymeric resin alone such as in Example 11 of Daniel and the other with a thermally reactive agent and the radiation activatable resin such as shown in Example IX. Daniel does not teach crosslinking in the presence of a polyol.

In the instant invention, cellulosic fibers are reacted with an effective amount of a *crosslinking agent in the presence of an effective amount of a C_4 - C_{12} polyol* and the *individualized intrafiber crosslinked cellulose fibers are characterized by a Whiteness Index (WI_{CDM-L}) greater than about 69.*" Specifically, the crosslinking agent and the polyol are two different compounds as shown in Table 1 that are used in the crosslinking of the cellulosic fibers.

Applicants appreciate the Examiners acknowledgement that the reference does not disclose the use of crosslinking agents specified by the claimed invention.

The Examiner states that it would have been obvious to one of ordinary skill in the art to select a crosslinking agent from the group disclosed by the claimed invention. Applicants submit that there is no suggestion in the reference to use an α -hydroypolycarboxylic acid crosslinking agent with a polyol. Furthermore, the US '589 patent teaches away from polyol-derivatized DMDHEU because their easy care effects are inferior to methanol-derivatized DMDHEU compounds (column 1, lines 29-31). Accordingly, withdrawal of the rejection is requested.

Claims 9-13 are dependent on Claim 1 and, as stated earlier, all the limitations of Claim 1 have not been met. Withdrawal of the rejection is respectively requested.

With regard to Claims 9-13 and, as stated earlier, Daniel does not disclose a crosslinking agent with a polyol and the Whiteness Index greater than about 69.

Applicants appreciate the acknowledgement by the Examiner that the Daniel reference does not disclose the use of the groups of polyols specified by the claimed invention.

Since Daniel does not disclose crosslinking cellulose fibers in the presence of a polyol, the Whiteness Index of these crosslinked fibers, none of the groups of polyols or the individual polyols, the claimed invention is not obvious.

In view of the above remarks Applicants request withdrawal of the rejection of Claims 9-13.

The Rejection of Claims 15-16 Under U.S.C. § 103a

Claims 15-16 are rejected under U.S.C. § 103(a) as being unpatentable over Daniel et al. in view of Lagerstedt-Eidrup et al. (US PG Pub. 2003/0208173 A1).

Claims 15 and 16 are dependent on Claim 1. Since all the limitations of Claim 1 have not been met and, as discussed earlier, the claim is not obvious, withdrawal of the rejection is respectfully requested.

Daniel et al. teach photo-activatable polymeric resins which are capable of forming covalent crosslinking bonds when impacted by radiation energy and being permanently fixed on a fibrous material after irradiation (page 3, line 44 - page 4, line 9). The fibers are preferably cellulose fibers. The polymeric backbone in the radiation activatable polymeric resins are obtainable from one kind or a combination of two or more monomer molecules such as ethylene, propylene, vinyl chloride, vinyl amine etc., page 4, lines 11-46 and page 5, lines 1 and 2. In the reference, there are two types of intrafiber crosslinking, one by the radiation activatable polymeric resin and one by the thermally reactive agent. Crosslinking with the radiation activatable polymeric resin can take place 1) prior to intrafiber crosslinking by a thermally reactive agent 2) simultaneously with intrafiber crosslinking with a thermally reactive agent 3) after intrafiber crosslinking with a thermally reactive agent (page 6, line 43 - page 7, line 1).

Langerstedt – Eidrup et al. teach an absorbent article containing a skin conditioning agent contained in a hydrogel foam material that can be applied either directly or indirectly via a liquid permeable material.

Applicants submit that the Examiner has failed to establish a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine or modify the references or teachings. Also, the prior art references

(or references when combined or modified) would appear to be sufficient to have made the claimed invention obvious to one of ordinary skill in the art. Applicants submit there is no motivation or suggestion to combine the Langerstedt-Eidrup reference with the Daniel reference since there is no suggestion in the reference of the need to combine the benefits of a skin conditioning agent with the crosslinked fibers of Daniel. Furthermore, the combined references do not teach all the limitations of Claims 1, 15 and 16. In view of the above remarks, Applicants request withdrawal of the rejection of Claims 15-16.

The Examiner is therefore respectfully requested to reexamine the application, to reconsider and withdraw the objections under 35 U.S.C. § 102 (b), and U.S.C. § 103, and promptly allow the case and pass it to issue.

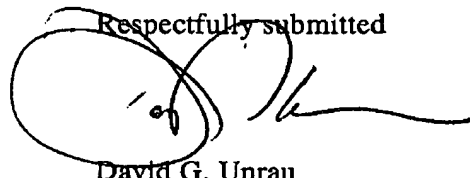
US Cognate DE -A 19654739 and English Abstract of DE -A 19654739

U.S. 6,265,589 B1, cognate of DE -A 19654739, and the English Abstract of DE - A 19654739 from the Derwent Database are included in this response.

CONCLUSION

Based on the foregoing, Applicants submit that the application is in condition for allowance and request that it proceed accordingly. If the Examiner has any further questions or comments the Examiner is invited to contact the Applicants' agent.

Respectfully submitted

A handwritten signature in black ink, appearing to read 'David G. Unrau', is written over the words 'Respectfully submitted'.

David G. Unrau

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WPI Acc No: 1998-363718/199832

XRAM Acc No: C98-111952

Etherated 4,5-dihydroxy-imidazolidin-2-one derivatives - comprise mixed alkylated and hydroxy-alkoxy-alkylated, methylolated

4,5-dihydroxy-imidazolidin-2-one derivatives, useful for textile finishing

Patent Assignee: BASF AG (BADI)

Inventor: HOIS P; LIPPERT F; REICHERT J

Number of Countries: 023 Number of Patents: 007

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
DE 19654739	A1	19980702	DE 1054739	A	19961230	199832	B
WO 9829393	A1	19980709	WO 97EP7318	A	19971230	199833	
DE 19655054	A1	19981126	DE 1054739	A	19961230	199902	
			DE 1055054	A	19961230		
EP 948488	A1	19991013	EP 97954477	A	19971230	199947	
			WO 97EP7318	A	19971230		
KR 2000062381	A	20001025	WO 97EP7318	A	19971230	200124	
			KR 99705937	A	19990629		
JP 2001507355	W	20010605	WO 97EP7318	A	19971230	200138	
			JP 98529621	A	19971230		
US 6265589	B1	20010724	WO 97EP7318	A	19971230	200146	
			US 99331583	A	19990630		

Priority Applications (No Type Date): DE 1054739 A 19961230; DE 1055054 A 19961230

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 19654739	A1		5	C07D-233/40	
WO 9829393	A1	G		C07D-233/32	
Designated States (National): CA CN JP KR US					
Designated States (Regional): AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE					
DE 19655054	A1			D06M-015/423	Div ex application DE 1054739
					Div ex patent DE 19654739
EP 948488	A1	G		C07D-233/32	Based on patent WO 9829393
Designated States (Regional): AT BE CH DE ES FR GB IT LI NL					
KR 2000062381	A			C07D-233/32	Based on patent WO 9829393
JP 2001507355	W		13	C07D-233/40	Based on patent WO 9829393
US 6265589	B1			C07D-233/40	Based on patent WO 9829393

Abstract (Basic): DE 19654739 A

Mixed alkylated and hydroxyalkoxy-alkylated, methylolated 4,5-dihydroxy-imidazolidin-2-ones of formula (I) are claimed, in which R1 = -CH2-O-X (with X = 1-5C alkyl, preferably methyl); R2 = a hydroxyalkoxyalkyl group obtained by etheration of a -CH2OH group with at least one polyol selected from ethylene glycol, diethylene glycol, 1,2- and 1,3-propylene glycol, 1,2-, 1,3- and 1,4-butyleneglycol, glycerol and polyethylene glycols of formula HO(CH2CH2O)_nH (with n = 3-20).

Also claimed is:

- (i) a process for the production of (I) by reacting 4,5-dihydroxy-imidazolidin-2-one (DMDHEU) with a 1-5C monohydric alcohol and one of the above polyols;
- (ii) an aqueous solution, especially a finishing bath, containing (I); and
- (iii) a process for finishing cellulose-containing textile

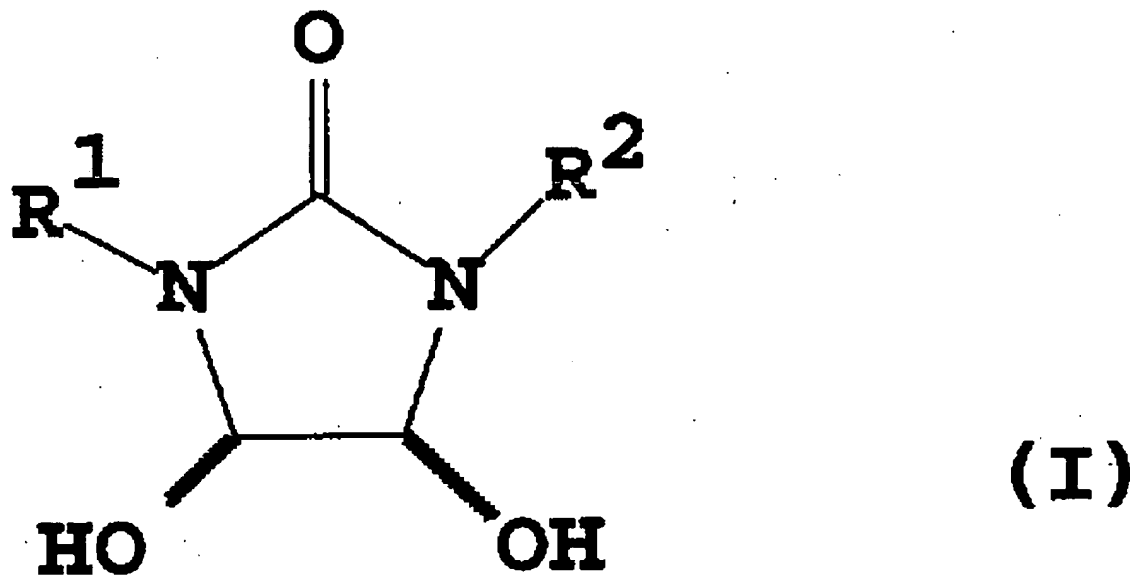
materials by treatment with this aqueous solution of (I).

The polyol used for etherating the CH₂OH group is diethylene glycol (DEG).

The production of (I) comprises reaction at 20-70 deg. C and/or pH 0.5-3, preferably 1-2.5, in one or two stages, preferably using methanol as the 1-5C alcohol and DEG as the polyol, each in amounts of 0.1-2.0 mol equivs. based on DMDHEU.

USE - Compounds (I) and aqueous solutions as in (ii) are used for finishing cellulose-based textiles (claimed).

ADVANTAGE - A low-formaldehyde textile crosslinker giving optimum finishing effects with low formaldehyde values in the textile and low emission levels in the finishing process.



Title Terms: ETHERIFICATION; DI; HYDROXY; ONE; DERIVATIVE; COMPRISE; MIX; ALKYLATED; HYDROXY; ALKOXY; ALKYLATED; METHYLOLATED; DI; HYDROXY; ONE; DERIVATIVE; USEFUL; TEXTILE; FINISH

Derwent Class: A87; E13; F06

International Patent Class (Main): C07D-233/32; C07D-233/40; D06M-015/423

International Patent Class (Additional): C08G-065/333; C08L-001/02; D06B-003/00; D06M-013/352

File Segment: CPI